Wisconsin
Department of Commerce

Evaluation # 200122-W Revised

Safety & Buildings Division
201 West Washington Avenue
P.O. Box 2658
Madison, WI 53701-2658

Wisconsin
Building Products Evaluation

Material: Garage Component Designs

Manufacturer:
Best Built Garage Builders, Inc.
405 Best Built Parkway
Marshall, WI 53559

SCOPE OF EVALUATION

Designs of various wood garage components developed by the Best Built Garage Builders, Inc., have been evaluated for conformance with the current edition of the Wisconsin Administrative Building And Heating, Ventilating And Air Conditioning Code. The garage components are approved for the structural loads snow and wind of **s. Comm 53.10**, **53.11**, **53.12**, **53.61(1)**, **(5)**, **(7)**, and **(8)**, **53.62**, **53.63(7)** through **(14).**

Designs of various wood garage components developed by the Best Built Garage Builders, Inc., have been evaluated for conformance with the current edition of the Wisconsin Administrative Uniform Dwelling Code. The garage components are approved for the structural loads snow and wind of **s. Comm 21.02(1)** through **(3)(a)**, and **21.08(1)**.

DESCRIPTION AND USE

Best Built Garage components consist of the following:

Rafter Designs for: **MSR SYP 2550 Lumber**

1. Spacing: 16 inches o.c.
   Size: 2 x 6
   Roof Slope: 4:12
   Maximum Garage Width: 24 feet
   Live Load: 40 psf

2. Spacing: 24 inches o.c.
   Size: 2 x 6
   Roof Slope: 4:12
   Maximum Garage Width: 24 feet
   Live Load: 30 psf

3. Spacing: 24 inches o.c.
   Size: 2 x 6
   Roof Slope: 4:12
   Maximum Garage Width: 22 feet
   Live Load: 40 psf

Rafter Designs for: **SPF No. 2 Lumber**

1. Spacing: 24 inches o.c.
   Size: 2 x 6
   Roof Slope: 4:12
   Maximum Garage Width: 18 feet
   Live Load: 30 psf

2. Spacing: 24 inches o.c.
   Size: 2 x 6
   Roof Slope: 4:12
   Maximum Garage Width: 16 feet
   Live Load: 40 psf

End-Wall Knee Brace Design:

Size: Double 2 x 4, spike together
6 feet 8 inches long from ridge to gable at 54.0° from the horizontal ridge
Material: Spruce-Pine-Fir "Stud Grade"
Wind Load: 20 psf

X-Tie Design (with overhead door support)

Spacing: 48 inches o.c.
Size: 2 x 6
Material: SPF #2
Maximum Garage Width: 30 feet
Live Load: 40 psf
Garage Door Weight: 250# distributed over four hangers
Critical Hanger Location = ¼ of garage width

X-Tie Design (with splice)

Spacing: 48 inches o.c.
Size: 2 x 6
Material: SPF #2
Maximum Garage Width: 30 feet
Live Load: 40 psf
Typical Splice (one per tie): (2) 5 inch x 8 inch - Mitek M20 Plates (#970036-N)
Press plates – one on each side
Plate Capacity: 100 psi

Top Plate Design with Splice Plate:

Size of Top Plate: Double 2 x 4
Size of Splice Plates: 3-inches x 6-inches – Mitek M20 Plates (#970036-N)
Live Load: 40 psf
The splice need not be located over a stud

Cantilevered 2 foot Extended Gable:

Garage Width: 30 feet with 1 foot overhangs
Live Load: 40 psf
Gable Roof Supports: (3) cantilevered beams of (2) 2 x 6 @ 72 inches
Long at a maximum spacing of 8 feet o.c.
(3) 2 x 4 struts spaced 8 feet o.c. maximum
Beam Material: #2 Spruce-Pine-Fir

End Wall Gable:

Live Load: 40 psf
Wind Load: 20 psf
Maximum Garage Width: 30 feet
Roof Slope: 4:12
Gable Studs: Width to 26 feet – 2 x 4 "Flat"
Width over 26 feet - center stud 2 x 6, balance 2 x 4
Gable Stud Spacing: 24 inches o.c.
Gable Stud Material: #2 Spruce-Pine-Fir

Header for Overhead Door in Gable End:

Header Size: Double 2 x 6 with 7/16-inch O.S.B. between
Header Material: MSR SYP 2250
Header Span: 16 feet
Live Load: 40 psf

1) Header Configuration: 15 inches high overall and 16 feet 5-inches long over two supports
Header Material: Top and bottom chords of 4 x 2 SPF No. 2 and webs of 4 x 2 SPF No. 2
Metal Plate Connectors: Mitek M20 Plates (#970036-N)

2) Header Configuration: 15 inches high overall and 9 feet 5-inches long over two supports
Header Material: Top and bottom chords of 4 x 2 SPF No. 2 and webs of 4 x 2 SPF No. 2
Metal Plate Connectors: Mitek M20 Plates (#970036-N)

Header for Overhead Doors in Sidewalls:

Header Configuration: 15 inches high overall
Header Material: f24-V4 Glue Lam
Header Span: 9 feet and 16 feet
Maximum Garage Width: 30 feet
Live Load: 40 psf

Sidewall Window Headers:

1) Header Size: Double 2 x 6
   Header Material: SPF-MSR 2100
   Header Span: 6 feet nominal
   Live Load: 30 psf
   Maximum Garage Width: 30 feet with 1 foot Overhangs

2) Header Size: Double 2 x 10
   Header Material: SPF #2
   Header Span: 6 feet nominal
   Live Load: 40 psf
   Maximum Garage Width: 30 feet

Sidewall Walk Door Headers:

1) Header Size: Double 2 x 4
   Header Material: SPF No. 2
   Header Span: 2 feet 10 inches
   Maximum Garage Width: for 40 psf Live Load, 20 feet,
   for 30 psf Live Load, 26 feet.

2) Header Size: Double 2 x6
   Header Material: SPF No. 2
   Header Span: 2 feet 10 inches
   Maximum Garage Width: 44 feet
   Live Load: 40 psf, Zone 1 Snow Load

Window: Framed Opening Detail at Gable Endwalls and Sidewalls

Two (2) ply 2 x 6 SYP with 7/16-inch OSB framing placed between 2 x 4 studs which are 24 inches o.c. Each end of framing is attached with (2) 16d nails.

Summary of Wall Stud Analysis:

1) Provide SPF Select Structural 2 x 4 @ 16 inches on center wall studs @ 30 feet wide garage in 40 psf (Zone 1) loading areas;

2) Provide SPF No. 1/No. 2 2 x 4 @ 16 inches on center wall studs @ 16 feet through 30 feet wide garages in 30 psf (Zone 2) loading areas, and @ 16 feet through 28 feet wide garages in 40 psf (Zone 1) loading areas; and

3) 2 x 4 wall studs @ 16 inches on center with stud Commercial Grade of SPF species material is unacceptable for all garage widths in both Zones 1 & 2.

Maintain a minimum distance of 4 feet between splices in the top and bottom plates in the double 2 x 4 top plate. The splices need not be located over a stud.

TESTS AND RESULTS

Structural calculations for the components covered in this evaluation were prepared by Richard H. Severn, P.E., WI E-11776, and William M. Walsh, P.E. WI E-24061. The revised structural calculations were prepared by James C. Gaskell, P.E. WI E-8050.

LIMITATIONS OF APPROVAL

Best Built Garage components shall be erected in accordance with this evaluation and the manufacturer's construction documents.

This evaluation does not cover roof trusses used for 26', 28', and 30' spans. When required, the trusses shall be reviewed by the local inspection agency.

This approval will be valid through December 31, 2006, unless manufacturing modifications are made to the product or a re-examination is deemed necessary by the department. The Wisconsin Building Product Evaluation number must be provided when plans that include this product are submitted for review.

DISCLAIMER

The department is in no way endorsing or advertising this product. This approval addresses only the specified applications for the product and does not waive any code requirement not specified in this document.

Revision Date: September 5, 2001

Approval Date: August 20, 2001 By: _____

Lee E. Finley, Jr.
Product & Material Review
Integrated Services Bureau

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